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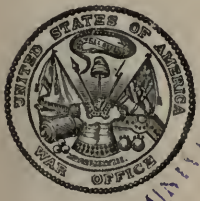
NOTES  
ON  
**LIAISON IN  
MODERN WARFARE**

COMPILED FROM THE LATEST SOURCES

*Galley*

APRIL, 1917

ARMY WAR COLLEGE



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The following notes on *Liaison in Modern Warfare* are published for the information and guidance of all concerned.

[2588951, A. G. O.]

BY ORDER OF THE SECRETARY OF WAR:

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## NOTES ON LIAISON.

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1. The question of "Liaison" in battle is of the utmost importance, as in modern warfare the complete coordination of the different arms, and of the different units in the line, is absolutely necessary for success.

2. In the armies of Europe the question has received the most serious attention, and the service of "Liaison" has been organized with a view to obtaining the most complete coordination possible, from the general headquarters down to the smallest units in the firing line.

3. Military attachés are assigned to the general headquarters in France, as "Officiers de liaison," from each of the Allied Powers.

Several staff officers are detaileđ from the general headquarters as "Officiers de liaison" and are assigned to the several armies; these officers travel at night from headquarters to the army to which they are assigned, remain with the army through the day, and return the following night to headquarters. Similarly, liaison officers are detaileđ from the several army headquarters to the different corps; from the corps to the divisions; and from the divisions to the brigades.

4. For the smaller units the detail of "Officiers de liaison" is fixed by regulations, and the officers are regularly trained in their duties; thus, in an Infantry regiment, the regiment furnishes a mounted officer for brigade headquarters; each battalion sends an officer or a noncommissioned officer and a cyclist to the colonel; and each company sends a soldier to the battalion commander. In an Artillery regiment, an officer is sent to the corps or division commander; each battalion sends an officer to the regimental commander, and each battery sends a sergeant to the battalion commander. Forward observation officers are also sent to the Infantry trenches to keep the Artillery informed of the needs of the Infantry.

5. The principal means of communication used are: The telephone, telegraph, wireless, aeroplanes, mounted messengers, automobiles, and motorcycles, and at the front, runners, visual signals, rockets, and carrier pigeons.

6. The main reliance for the service of the lines of information is the telephone. In the German Army it is the sole instrument employed within the sphere of the army corps. The telegraph is used only for connecting up corps headquarters with the higher commanders in rear. With the Allies, the telephone is the principal means of communication from the brigade headquarters down to the fighting line.

The main lines are buried at least 6 feet under the ground in lead cables until the trenches are reached; from here the lines are run along the communicating trenches, bracketed from the sides 2 or 3 feet below the surface, or buried below the floor of the trenches; in the firing trenches the lines are bracketed along the firing side of the trench.

7. Each battalion commander is connected by telephone with each company commander, with the Artillery observers, with the Artillery commander, and with his colonel; also with adjacent battalions on either side.

8. When a bombardment commences the lines are being continually cut, and it has been found necessary to run a number of lines for each line of communication, and even then telephone communication is often completely interrupted, and the only communication is by visual signals or messengers. In case of an advance the problem becomes almost hopeless. The telephone linemen follow the first line of the attack, but they can not travel as fast as the line, and they are obliged to do their work on a terrain which is beaten by Artillery fire; few men will arrive safely at the point previously assigned them for establishing their station.

9. Both the Germans and the Allies are using "listening apparatus" for the purpose of overhearing the enemy's telephone communications, by means of grounded wires and induction, and at the present time the lines in the forward trenches are being put in with metallic circuit (without ground), and the strictest regulations are being enforced as to the use of the telephones; no private messages are allowed, and all messages are in code. Even conversation about any movement or plan is forbidden in the forward trenches.

10. Wireless has found relatively little use, it being slow, liable to interruptions, and the predominance of position warfare rendering it more or less superfluous. It is principally used in connecting the commander of the army with distant elements with whom telephone connection could hardly be established. It is also used to a certain extent from aeroplanes in regulating artillery fire, especially the heavy batteries.

11. Automobiles and motorcycles are of the greatest importance to the different headquarters in maintaining easy and rapid communication between armies, corps, divisions, and even brigades; but as the fighting line is approached, they are no longer practicable, as the roads are swept by shells from the hostile artillery.

12. Aeroplanes are used in different ways in the service of information:

Contact aeroplanes are assigned for service with the infantry in an attack. During the attack they can fly low with comparative safety and can discover the movements of the enemy, locate his reserves, machine-gun emplacements, etc., and give prompt notice to the infantry. Contact aeroplanes communicate with the infantry by means of a Klaxon horn, Very's signals, or by dropping messages in tubes from overhead. The wireless is only used by contact aeroplanes for signaling to the artillery.

Other aeroplanes are assigned for service with the artillery, and signal with wireless only, using a prearranged code. The clock system is used, the target being considered always at the center of the dial with true north at 12 o'clock; concentric circles represent 50, 100, 200, 300, 400 yards from the target, and are marked by the letters A, B, C, D, etc., while the dial is marked by numbers from 1 to 12. Thus a signal "4 B" would mean that the shot fell 100 yards from the target at 4 o'clock.

13. Recent instructions to the British Armies include very complete instructions for keeping up communications during and immediately after an assault. These instructions have been evolved from over two years of experience in actual warfare, and probably can not be improved on at the present time.

#### BRITISH INSTRUCTIONS.

##### "SIGNAL COMMUNICATIONS."

1. The rapid establishment of good signal communications, immediately after the assault, is one of the most important, though one of the most difficult, things to deal with. No possible means of keeping up communications must be neglected.

Particular attention to the subject during training and careful preparation before the assault are the best means of assuring success.

Considerations of topography and the siting of our own and the hostile trenches will decide the methods which give most promise of success, and on these methods every effort should be concentrated.



The parties required for establishing each system must be definitely told off and properly organized beforehand, and should be trained to their particular duties at all rehearsals.

2. *Cable lines for telephones and telegraphs.*—(i) This is the most valuable form of communication, and every effort must be made to establish the lines securely at the earliest possible moment. To render cable lines reasonably secure requires time and labor, and can only be effected by burying them to a depth of 6 feet or more.

(ii) The extent to which hastily laid lines on the surface can be kept through depends on the amount of hostile shelling.

Laddered <sup>1</sup> lines are very useful, and can be quickly constructed after the assault.

The vicinity of villages, woods, and roads, which are always heavily shelled, should be avoided as far as possible when selecting cable routes.

Communication trenches in the enemy's lines, which will not be required for consolidation, should be previously selected and allotted as cable trenches; the cable can be buried in these when labor is available in less time than would be required to dig a new cable trench. The latter is more likely to be noticed than the old communicating trench, and, moreover, the old trench is likely to have dugouts in it which can be used for test points.

(iii) Cables must be run out immediately behind the last wave of the assaulting column, the linesmen following a previously selected route; the cable should be carried right through to the trench which is being consolidated, and offices established at points in this trench line which have been previously selected after studying maps and air photographs.

(iv) As soon as this has been done, efforts must be concentrated on the maintenance of one or two lines leading to important points; it is a waste of time and labor to attempt to maintain all the lines. Existing dugouts in the enemy's trenches must be told off as test stations on the cable route, and maintenance parties previously detailed must be stationed at these test stations.

(v) Special working parties must be placed at the disposal of the commanding officer, division signal company, for the purpose of burying the cable across "No man's land," and thence forward, via old communication trenches, to the consolidated line. The parties will seldom be able to start work before the night after the assault.

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<sup>1</sup> Lines run above the ground, supported on poles, trees, etc.



(vi) Where Russian saps<sup>1</sup> have been run out, it may be possible to get the cable a part of the way across "No man's land" before the assault, by laying the cable at the bottom of the sap; then when the roof of the sap is broken in, the cable will be buried sufficiently to protect it from shrapnel and also from traffic in the sap.

3. *Visual signals.*—(i) Where the topography of the ground is suitable, good results can be obtained with visual signals.

This system depends more than any other on previous preparation; all details must be worked out, points where it is proposed to establish stations in the enemy's lines being approximately located by reconnaissance and by the study of maps. In this connection enemy machine-gun emplacements have been found valuable.

When completed the scheme, with a sketch map, must be issued to all concerned.

Back stations in our own lines must be specially prepared and provided with overhead cover.

(ii) A selected officer, either of the signal service or an officer in charge of battalion signals, should be placed in charge of the organization, and should be given the necessary personnel and equipment required to work the scheme.

(iii) Each signal station to be established in the enemy's lines should be allotted to a definite battalion. The personnel detailed for each station will assemble at the battalion headquarters prior to the assault, and will be sent forward by the battalion commander as soon as the objective has been gained. They should not be sent over with the assaulting columns.

The personnel should be lightly equipped; they must carry the signaling equipment fastened to the person in as inconspicuous a manner as possible, while yet leaving them free to use their weapons if necessary.

(iv) The signalers of assaulting companies move with the company commander, and should carry signaling shutters for the purpose of getting into communication with their own unit as soon as possible after the objective has been reached and before the main visual scheme has been established.

Lamps should be reserved for the main scheme; they are too bulky to be carried in the assault and also are difficult to replace.

(v) All visual signallers need special training to give them confidence in repeating a message several times to a known back station

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<sup>1</sup> Saps run underground.

which may not be able to reply forward; it is most desirable, however, that the back stations should acknowledge whenever possible.

4. *Pigeons*.—These are invaluable when properly organized and used. The pigeons and personnel available must be definitely allotted to the different units, and arrangements must be made for maintaining the supply of pigeons.

At the commencement of the assault the pigeons and pigeon men must be kept back at battalion headquarters, and sent forward as soon as the position has been gained. The men must be given definite orders as to whom they are to report and must be provided with a guide if necessary.

In the front lines, pigeons must be kept in dugouts to protect them from shell fire, mud and wet, as much as possible.

Pigeons should be reserved for important messages; all officers should be instructed how to write clear and concise messages in the Pigeon Message Book.

5. *Wireless*.—(i) A wireless set, placed at the disposal of a division by the corps, must be allotted to a definite commander, or to a specially appointed officer, who will be responsible for deciding what messages are to be sent by wireless and for arranging for the messages to be coded.

(ii) Wireless should be reserved for urgent messages, such as calls for barrage fire, etc.; the message must be short and concise, to facilitate coding and decoding.

(iii) At the commencement of an assault a wireless set should not, as a rule, be in advance of brigade headquarters; but as soon as the position has been gained, a wireless set should be sent forward to a selected battalion headquarters, or to a selected position if the site of the battalion headquarters is not suitable.

(iv) A commander ordering a wireless set to move forward will arrange for—

(a) Written orders as to whom the party are to report to, and at whose disposal the set is to be placed.

(b) A carrying party of six men.

(c) A guide to the new position.

(v) As far as possible, the points to which the wireless sets are to move forward must be decided on before the assault and notified to all commanders concerned; otherwise the latter will be unaware of the existence of wireless communication in the forward area, and will consequently not make use of it.

(vi) It is impossible to obtain good results from the delicate wireless instruments unless the set is installed in a reasonably dry dugout, which should be reserved for wireless only.

Heavily shelled areas must be avoided, otherwise the difficulty of maintaining the aerial may render the set useless.

6. *Runners*.—This is the one means of communication which can be relied on when all other means fail; and, therefore, commanders must devote great care to the training and organization of their runners. Company runners must be trained with their companies.

Opinions vary as to the actual number required; the following has been found to be a good average number of men:

At battalion headquarters.....	10
At company headquarters.....	4

Each platoon commander also requires a runner.

Runners should be lightly equipped and should wear a distinctive mark; they should be young, lightly built, and intelligent. Every man must be thoroughly familiar with all the routes to all the principal centers within their battalion sector, i. e., to all company headquarters, and not only to their own, to all forward dumps,<sup>1</sup> to the headquarters of battalions on the flanks, to the headquarters of the brigade, and to the advanced report center (station established in advance of headquarters, generally, at end of buried cable, for relaying messages).

It must be impressed upon all runners that the quicker they go the safer they are.

Company and platoon runners must go forward with their respective commanders. Runners must be sent in turn and must be rested as far as possible when not actually at work.

Where messages have to be carried a long distance, e. g., to brigades, some arrangement of relays is required. The establishment of a brigade advanced report center, well forward, at the head of the buried cable, if existing, is useful. Battalion runners will bring their messages to this point, whence the contents can be telephoned to brigade headquarters, the actual messages themselves being sent on by special brigade runners.

Relay posts may often be required between brigade headquarters and advanced division headquarters. Every relay post must be labeled and numbered.

On no account should any verbal message be sent by runners; every message must be in writing, and verbal messages should be ignored.

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<sup>1</sup>Ammunition distributing stations.

7. *Artillery messages.*—Company and battalion commanders of assaulting units must be prepared to assist Artillery liaison officers in getting their messages back. The artillery can not always provide sufficient runners for their forward officers; and where it is not possible to keep a line open owing to shelling, an infantry runner will often be the only means of getting an artillery message through.

There must be the closest cooperation between the signal service of the division and the artillery as regards the transmission of artillery messages; and, in deciding on the means of communication to be established, the needs of the artillery must be considered and provided for as far as possible, particularly in the buried cable routes forward from our jumping-off<sup>1</sup> trenches.

8. *Flank liaison officers.*—To insure that neighboring commanders are kept regularly informed as to the progress of events, liaison officers must be exchanged by all assaulting brigades and battalions with the corresponding brigade or battalion on either flank.

The duty of the liaison officer is to keep his own commander constantly informed of the progress and situation of the unit with which he is in liaison. Every liaison officer must be provided by his own unit, with some means of communication.

#### AEROPLANES.

Contact patrol work by aeroplane is designed to supplement, but in no way take the place of other systems of communication.

Observers must be fully informed as to the plan of attack, the disposition of the troops with whom they are working, and their objectives. Before going up, the observer should always, if possible, visit the division, or, if the operation is a small one, the brigade concerned, in order to obtain all the detailed information possible. He should synchronize his watch with the staff, so that he may know exactly when to look for the attack to commence.

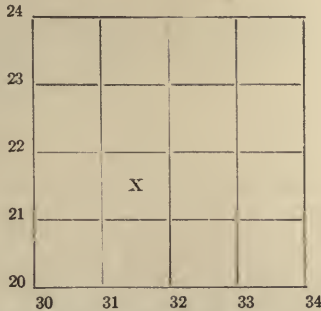
Aeroplanes detailed for contact work must have special markings, which should be known to all ranks of the Infantry with which they are working. They will, in addition, carry a Klaxon horn and Very's lights for the purpose of making themselves known, and to answer signals from the ground.

Aeroplanes on contact patrol must not be called upon to report regarding hostile batteries, or to check the fires of our artillery, which is the duty of the machines working with the artillery. From the position from which they work they are, however, very well placed to

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<sup>1</sup> Forward trenches from which assault is made.

keep our artillery informed as to the movements of the enemy in immediate contact with our infantry; they should watch especially for movements of immediate reserves, massing of troops for counter attack, machine guns, and strong points holding up our advance, and targets of such nature, and send the information to the artillery by wireless, using the zone call<sup>1</sup> system as used by the artillery machines.



<sup>1</sup> The map of area is divided into zones of 1 kilometer square, and the position of targets designated by their coordinates; thus, a target at "X" is reported 215-315.





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